

Emerging Cancer Scenario

Cancer in N.E.India

- Globally 10 million new cancer cases are detected out of which 6 million patients die.

- By 2020 this figures are expected to reach 20 million and 10 million respectively.

- The prevalence of cancer in India is around 2.5 million, with over 8 lakh new cases and 5.5 lakh deaths occurring each year due to this disease in the country.

- Twenty one percent of all deaths in the developed world (2.5 million) and 9.5%(3.8 million) in the developing world are due to cancer.
- Globally in 2005 it is estimated that 40% of all disease burden was due to communicable disease, maternal and perinatal conditions and nutritional deficiencies.
- Rest 605 of all deaths were due to chronic diseases.

- The incidence of cancer at rural cancer registry, Barshi Maharashtra is 36.2/1lakh in males.
- This figure was taken as the cut off level to look at the pattern of cancer in different districts are pre dominantly rural.
- Accordingly 82 districts have been identified across the country having incidence rate above minimum incidence rate of Barshi.

In the North East out of top seven districts of India, the state of Mizoram has six districts having high minimum age incidence rate for male ranging from 107.6/1 lakh to 217.9/1 lakhs.

Followed by

- Imphal west 85.8
- East Sikkim 81.2
- Kohoma 78.4
- North Sikkim 75.5
- Thoubal (Manipur) 65.0
- Saiha (Mizoram) 64.9
- Bishnupur (Manipur) 63.8
- Imphal East 63.4
- Kamrup 60.3
- Dibrugarh 53.9
- Darrang 37.9
- Jorhat 36.5
- East Khashi Hills 36.2

- In India 30% of all cancer are tobacco related. Cancer of cervix ad breast together account for 40-45% in urban women and 56% in rural women. All these cancers related with our lifestyles and habit can be largely prevented or detected at an early stage by simple method of examination.

Rate of Tobacco taking people of above 15 years:

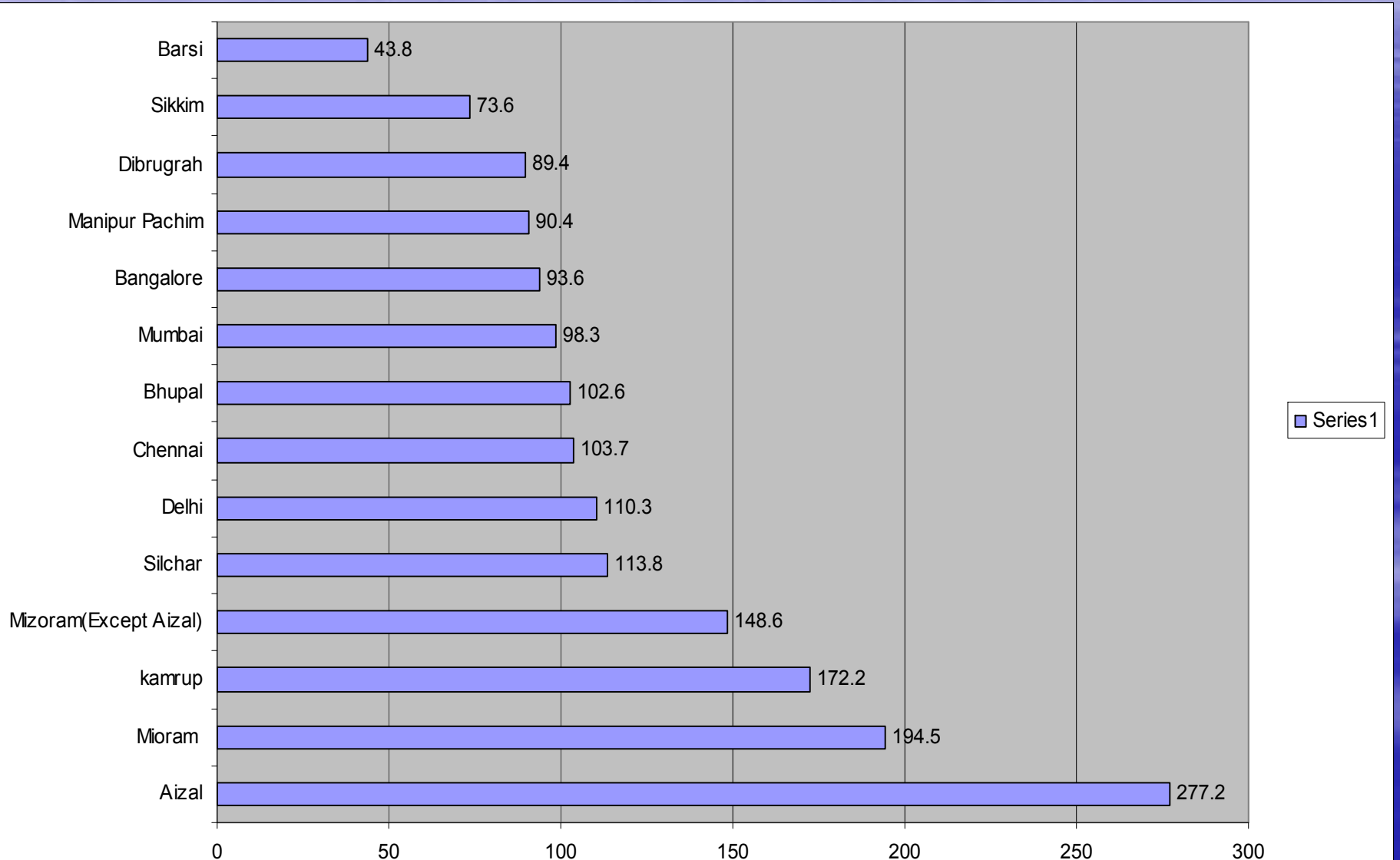
| | Smoking | Jardda | Tabacoo | Gutkha |
|-------------|---------|--------|---------|--------|
| ■ India | 33.1% | 28.3% | 2.5% | 12.4% |
| ■ Assam | 38.9% | 48.2% | 2.7% | 24.9% |
| ■ Manipur | 39.2% | 34.4% | 12.2% | 19.6% |
| ■ Maghalaya | 57.6% | 16.7% | 6.8% | 27.6% |
| ■ Mizoram | 67.1% | 60.3% | 22.1% | 60.7% |
| ■ Nagaland | 49.5% | 45.3% | 2.5% | 16.5% |
| ■ Panjab | 15.8% | 9.3% | 0.3% | 0.2% |

Rate of Tobacco taking Students of 8 Schools of the North-Eastern region

| STATE | Total Population | MALE % | | FEMALE % | |
|-------------------|------------------|---------|------------------------------|----------|------------------------------|
| | | Smoking | Jardda, Tabacoo, Gutkha etc. | Smoking | Jardda, Tabacoo, Gutkha etc. |
| Assam | 782 | 55.3 | 44.4 | 33.8 | 50.5 |
| Arunachal pradash | 533 | 45.2 | 47.9 | 34.4 | 49.0 |
| Manipur | 359 | 79.5 | 75.0 | 61.6 | 75.8 |
| Maghalaya | 447 | 69.9 | 51.3 | 31.6 | 56.6 |
| Mizoram | 307 | 75.3 | 79.2 | 76.2 | 87.2 |
| Nagaland | 426 | 55.1 | 49.8 | 18.1 | 32.5 |
| Sikkim | 342 | 52.5 | 54.2 | 39.7 | 73.6 |
| Tripura | 562 | 56.6 | 55.5 | 9.2 | 24.5 |

MALE

Rate of Cancer patients according to Age(per 1,00,000)



| STATE | Total Population | MALE % | | FEMALE % | |
|-------------------|------------------|---------|------------------------------|----------|------------------------------|
| | | Smoking | Jardda, Tabacco, Gutkha etc. | Smoking | Jardda, Tabacco, Gutkha etc. |
| Assam | 782 | 55.3 | 44.4 | 33.8 | 50.5 |
| Arunachal pradesh | 533 | 45.2 | 47.9 | 34.4 | 49.0 |
| Manipur | 359 | 79.5 | 75.0 | 61.6 | 75.8 |
| Maghalaya | 447 | 69.9 | 51.3 | 31.6 | 56.6 |
| Mizoram | 307 | 75.3 | 79.2 | 76.2 | 87.2 |
| Nagaland | 426 | 55.1 | 49.8 | 18.1 | 32.5 |
| Sikkim | 342 | 52.5 | 54.2 | 39.7 | 73.6 |
| Tripura | 562 | 56.6 | 55.5 | 9.2 | 24.5 |

Dr. BHUBANESWAR BOROOAH CANCER INSTITUTE

- Dr. BHUBANESWAR BOROOAH CANCER INSTITUTE was established in 1973.
- It was recognized by the govt. of India in 1980 as Regional Institute for Cancer Treatment & Research.
- ✓ The Institute is presently funded by the North-Easter Council, Department of Atomic Energy, Govt. of India and the Govt. of Assam.
- ❖ The Institute largely caters to the need of the eight North-Eastern States.

- It is located in the heart of the city near Arya Vidapeeth College spreading over a plot of land measuring 14.1 acres.
- It is a 155 bedded Hospital with 26 numbers of paying cabin of which 14 are AC cabins.
- About 6000 patients visit the institute every year and more than 4000 cancer patients are treated.

- The department of Radio-Diagnosis Imaging is equipped with 500mm X-ray machine with IITV, portable X-ray, Orthopantogram (OPG), Color Doppler Ultrasound, Mammography machine with stereotactic biopsy facilities, multiple slice spiral CT scan and 1.5Tesla MRI machine.
- In addition to this, there is a nuclear medicine division with a Gamma Camera for Radioisotope scanning. Beyond usual duty hours, USG, CT scan & MRI are done till 8PM and the rates are subsidized.
- These facilities are available for outside patients also. Mammography is a procedure for early detection of breast cancer which is more common in women of upper socioeconomic group. Above 40 years, unmarried or childless or with family history of breast cancer and in women having late marriage and late child birth.

- I. Pathology department has all the latest state of the art equipment. It has fully automatic Biochemistry Analyzer, for all sort of Biochemical tests.
- II. Enhanced Chemiluminiscence immunodiagnostic system for tumour makers, hormones and drugs. Routine Haemotological tests are done with Himaalyser, 3D cell counter etc. Histo-pathology including forzen section biopsy and cytology are done in large number of patients.
- III. Immuno histochemistry for various receptors, oncogene, CD makers etc. have been introduced recently. Blood bank is being upgraded for component separation with online cell separator. The Institute aims to start peripheral stem cell transplantation programme in near future.
- IV. *Fully automated real time PCR will be installed in the year year 2007 for genetic laboratory.*

- Radiation Oncology Department is equipped with Cobalt-60 Teletherapy machines, one Dual energy linear accelerator with MLC, IMRT, 3DRT.
- **This sophisticated state of the art facility, which has been added only recently is available in few selected institutes in the country.**
- A second Linear Accelerator will be added in the year 2007.
- **BBCI also has Brachy therapy (Selectron LDR & Micro Selectron HDR) machines.**
- There is one conventional simulator, CT simulation facility, computerized 3D treatment planning system workstations.
- **External Radiation Therapy is continued till late evening in batches and the average waiting period for Radiotherapy is approximately 7 days.**

- Surgery of the Head & Neck cancers, cancer of the Esophagus, Breast, Stomach, Colon, Liver, Pancreas, Bone & Lung tumors are routinely performed.
- Cancer of the Uterine Cervix, Ovary, Vulva, Uterus etc. are also done regularly. There are four number of well-equipped operation theatre with postoperative recovery room and ICU facility.
- Laser surgery facility is also available. Various forms of reconstructive and Video-Microscopic surgery are also done. Video endoscopic procedures are done in the OPD itself.
- Video-colostomy provides opportunity for early detection of cervical cancer. This cancer is the number one cancer among women in India and is largely preventable or can be easily detected in the pre-cancer stage.
- It is more common between 35 to 55 years of age in women with poor genital hygiene. Doctor should be consulted for white discharge per vagina, irregular intermenstrual bleeding, postmenopausal bleeding or bleeding after sexual relationship.
- Minimally invasive laparoscopic surgery and cystoscopy surgery will be introduced from the next year.
- A centre of excellence in stapler technique has been set up in 2006 to impart training to the doctors of the North- East.

All departments within BBCI are computerized.

- The Medical Oncology department has facilities for daycare Chemotherapy in addition to in house Chemotherapy for longer duration.
- Joint Tumour Clinic (JTC) is held on every Saturday and multidisciplinary tumour board decides treatment plan on daily basis.
- Mortality meetings are held on every fourth Saturdays.

For terminally ill cancer patients there is a pain and palliative care clinic in collaboration with Guwahati Pain and palliative Care Society.

Clinical psychologist and social investigators provide necessary counseling. For re-habilitation there is a speech –therapy clinic. for recreation o cancer patients sight seeing programme, musical programme, meditation and yoga course, community prayer programme, indoor games ad library facilities are provided.

.....

Patients are encouraged for a dignified living by taking part in tree plantation, gardening etc.

- The Institute has Tele-medicine facility through which complicated patients are consulted with Tata Memorial Hospital, Mumbai or other premier cancer center of the country.
- This Tele-medicine unit is also connected to the respective Tele-medicine Units at Jorhat Civil Hospital, RIMS. Imphal, Naharlong Hospital, Itanagar Civil Hospital and Mokokchung Hospital in Nagaland.
- 100 bedded Jironi Ghar for attendant and patients are under construction and will be ready during the early part of 2007.

- Dr. B.Borooaah Cancer Institute is a Regional Cancer Centre (RCC) catering to the cancer related health requirements of the people of North-Eastern Region for more than 30 years.
- It is a 160 bedded Hospital with 26 nos. of paying cabins. All sorts of cancer diagnostic facilities like CT Scan, Ultra Sound, X-Ray with IITV, Orthopantogram machine, MRI, Nuclear Scan, Mammography machine, Video- Colposcopic, Video –endoscopic, Forzen Section biopsy facility.
 - Immuno-histochemistry, Hematology, Bio-chemistry, Hormones and Tumor marker assay, Tele Consultation facilities are available at subsidized rates.

New Malignant Cases treated during the year –April 2005 – March 2006 in Dr.B. Borooah Cacer Institute, Guwahati, Assam

| Site ICD-10 | Male | % | Female | % | Total | % |
|---------------------------|------|-------|--------|-------|-------|-------|
| C00-Lip | 6 | 0.24 | 2 | 0.12 | 8 | 0.19 |
| C01-Base of tongue | 161 | 6.53 | 31 | 1.99 | 192 | 4.78 |
| C02- Other tongue | 38 | 1.54 | 15 | 0.96 | 53 | 1.31 |
| C03- Gum | 51 | 2.07 | 22 | 1.41 | 73 | 1.81 |
| C04-Floor of mouth | 11 | 0.44 | 2 | 0.12 | 13 | 0.32 |
| C05-Palate | 34 | 1.38 | 10 | 0.64 | 44 | 1.09 |
| C06- Other mouth | 96 | 3.89 | 42 | 2.07 | 138 | 3.43 |
| C07-Parotid Gland | 14 | 0.56 | 5 | 0.32 | 19 | 0.47 |
| C08-Major salivary glands | 4 | 0.16 | 1 | 0.06 | 5 | 0.12 |
| C09-Tonsil | 126 | 5.11 | 30 | 1.93 | 156 | 3.88 |
| C10-oropharynx | 61 | 2.47 | 6 | 0.38 | 67 | 1.66 |
| C11-Nasopharynx | 51 | 2.07 | 14 | 0.90 | 65 | 1.61 |
| C12-Pyiform Sinus | 263 | 10.67 | 31 | 1.99 | 294 | 7.32 |
| C13-Hypopharynx | 82 | 3.32 | 15 | 0.96 | 97 | 2.41 |
| C14-Oral cavity & Pharynx | 65 | 2.63 | 11 | 0.70 | 76 | 1.89 |
| C15-Oesophagus | 408 | 16.56 | 167 | 10.75 | 575 | 14.31 |

New Malignant Cases treated during the year –April 2005 – March 2006 in Dr.B. Borooah Cancer Institute, Guwahati, Assam

| | | | | | | |
|--------------------------------------------------|-----|------|-----|-------|-----|------|
| C16-Stomach | 77 | 3.12 | 27 | 1.73 | 104 | 2.58 |
| C17-Small intestine | - | - | 1 | 0.06 | 1 | 0.02 |
| C18- Colon | 25 | 1.01 | 13 | 0.83 | 38 | 0.94 |
| C19-Rectosigmoid junction | 3 | 0.12 | 2 | 0.12 | 5 | 0.12 |
| C20-Rectum | 34 | 1.38 | 26 | 1.67 | 60 | 1.49 |
| C21-Anal Canal | 10 | 0.40 | 6 | 0.38 | 16 | 0.39 |
| C22-Liver | 23 | 0.93 | 11 | 0.70 | 34 | 0.84 |
| C23-Gall Bladder | 57 | 2.31 | 134 | 8062 | 191 | 4.75 |
| C24-Other and unspecified parts of biliary tract | 4 | 0.16 | 2 | 0.12 | 6 | 0.14 |
| C25-Pancreas | 8 | 0.32 | 1 | 0.06 | 9 | 0.22 |
| C30-Nasal Cavity | 7 | 0.28 | 3 | 0.19 | 10 | 0.24 |
| C31-Accessory Sinuses | 9 | 0.36 | 2 | 0.12 | 11 | 0.27 |
| C3- Larynx | 136 | 5.52 | 16 | 1.03 | 152 | 3.78 |
| C34-Lung | 139 | 5.64 | 32 | 2.06 | 171 | 4.24 |
| C38-Heart, Mediastinum & Pleura | 8 | 0.32 | 5 | 0.32 | 13 | 0.32 |
| C40- Bone& Articular cartilage of Limbs | 11 | 0.44 | 7 | 0.45 | 18 | 0.44 |
| C41- Others and unspecified sites | 9 | 0.36 | 4 | 0.25 | 13 | 0.32 |
| C43- Melanoma of skin | 7 | 0.28 | 7 | 0.45 | 14 | 0.32 |
| C44-Other malignant neoplasm of skin | 25 | 1.01 | 13 | 0.83 | 38 | 0.94 |
| C47-Peripheral Nerves & Autonomic Nerves System | 6 | 0.24 | 5 | 0.32 | 11 | 0.27 |
| C48-Retroperitoneum & aperitoneum | 2 | 0.08 | 2 | 0.12 | 4 | 0.09 |
| C49- Other connective & Soft tissue | 6 | 0.24 | 5 | 0.32 | 11 | 0.27 |
| C50-Breast | 6 | 0.24 | 256 | 16.48 | 262 | 6.52 |

**PATIENTS DURING : APRIL 2005 TO MARCH 2006 in
Dr.B. Borooah Cacer Institute, Guwahati, Assam**

| PATIENTS | MALE | FEMALE | TOTAL |
|----------------------------------|-------------|---------------|--------------|
| New patients registered | 4010 | 2586 | 6596 |
| Number of Malignancies detected | 2463 | 1553 | 4016 |
| Total number of OPD consultation | 24067 | 14404 | 38471 |
| Patients admitted indoor | | | 1665 |

DISTRICT WISE BREAK-UP OF CANCER CASES STATE ASSAM YEAR : APRIL 2005 TO MARCH 2006

| Sl.No. | District | Male | Female | Total |
|--------------|---------------|-------------|-------------|-------------|
| 1 | Goalpara | 74 | 36 | 110 |
| 2 | Dhuburi | 78 | 29 | 107 |
| 3 | Bongaigaon | 84 | 39 | 123 |
| 4 | Kokrajhar | 26 | 23 | 49 |
| 5 | Kamrup | 569 | 400 | 969 |
| 6 | Nalbari | 164 | 105 | 269 |
| 7 | Barpeta | 203 | 93 | 296 |
| 8 | Darrang | 179 | 123 | 302 |
| 9 | Sonitpur | 125 | 102 | 227 |
| 10 | Nagaon | 185 | 153 | 338 |
| 11 | Marigaon | 92 | 51 | 143 |
| 12 | Karbi Anglong | 28 | 20 | 48 |
| 13 | N.C.Hills | 9 | 3 | 12 |
| 14 | Cachar | 22 | 10 | 32 |
| 15 | Karimganj | 14 | 8 | 22 |
| 16 | Jorhat | 65 | 34 | 99 |
| 17 | Sibsagar | 39 | 28 | 67 |
| 18 | Dibrugrah | 21 | 19 | 40 |
| 19 | Lakhimpur | 60 | 25 | 85 |
| 20 | Dhemaji | 6 | 5 | 11 |
| 21 | Golaghat | 44 | 31 | 75 |
| 22 | Tinsukia | 23 | 15 | 38 |
| 23 | Hailaksndi | 21 | 4 | 25 |
| Total | | 2131 | 1356 | 3487 |

**STATE WISE BREAK-UP OF CANCER CASES
(NORTH EAST STATES)
YEAR: APRIL 2005 TO MARCH 2006**

| Sl.No. | District | Male | Female | Total |
|--------------|-------------------|-------------|-------------|-------------|
| 1 | Assam | 2131 | 1356 | 3487 |
| 2 | Meghalaya | 156 | 75 | 231 |
| 3 | Manipur | 22 | 21 | 43 |
| 4 | Mizoram | 17 | 23 | 40 |
| 5 | Nagaland | 71 | 43 | 114 |
| 6 | Arunachal Pradesh | 51 | 22 | 73 |
| 7 | Tripura | 10 | 6 | 16 |
| 8 | Other States | 7 | 5 | 12 |
| Total | | 2465 | 1551 | 4016 |

YEAR WISE STATISTICS

| Sl. no. | For the year | Total no. of new cases registered | Total cancer cases | | Male cancer patients | | Female cancer patients | |
|---------|--------------|-----------------------------------|--------------------|------|----------------------|------|------------------------|------|
| | | | No | % | No | % | No | % |
| 1 | 1990-1991 | 3749 | 2538 | 67.7 | 1706 | 67.2 | 832 | 32.8 |
| 2 | 1991-1992 | 4384 | 2709 | 61.8 | 1804 | 66.6 | 905 | 33.4 |
| 3 | 1992-1993 | 4280 | 2645 | 61.8 | 1765 | 66.7 | 880 | 33.3 |
| 4 | 1993-1994 | 4249 | 2800 | 65.9 | 1905 | 68.0 | 895 | 33.0 |
| 5 | 1994-1995 | 4833 | 3278 | 67.8 | 2124 | 64.8 | 1154 | 35.2 |
| 6 | 1995-1996 | 5144 | 3440 | 66.9 | 2300 | 66.9 | 1140 | 33.1 |
| 7 | 1996-1997 | 5509 | 3832 | 69.6 | 2564 | 66.9 | 1268 | 33.1 |
| 8 | 1997-1998 | 5353 | 3720 | 69.5 | 2477 | 66.6 | 1243 | 33.4 |
| 9 | 1998-1999 | 5475 | 3797 | 69.4 | 2502 | 65.9 | 1295 | 34.1 |
| 10 | 1999-2000 | 5657 | 3897 | 68.9 | 2511 | 64.4 | 1385 | 35.6 |
| 11 | 2000-2001 | 5469 | 3685 | 67.8 | 2333 | 63.3 | 1352 | 35.7 |
| 12 | 2001-2002 | 5404 | 3662 | 67.8 | 2335 | 63.8 | 1327 | 36.2 |
| 13 | 2002-2003 | 5714 | 3391 | 59.3 | 2184 | 64.4 | 1207 | 35.6 |
| 14 | 2003-2004 | 6071 | 3086 | 50.8 | 1978 | 64.1 | 1108 | 35.9 |
| 15 | 2004-2005 | 6246 | 4111 | 65.8 | 2618 | 63.7 | 1493 | 36.2 |
| 16 | 2005-2006 | 6596 | 4016 | 60.9 | 2465 | 61.4 | 1551 | 38.6 |

**Nuclear Medicine==Total=221
No. of Free Patients==Total=871**